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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,656	06/29/2001	Jian Li	884.494US1	8518

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EXAMINER

NGUYEN, DAO H

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/896,656

Applicant(s)

LI ET AL.

Examiner

Dao H Nguyen

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 9-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 24-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. In response to the communications dated 06/29/2001 through 09/09/2002, claims 1-29 are active in this application.

### **Acknowledges**

2. Receipt is acknowledged of the following items from the Applicant.  
information Disclosure Statement (IDS) filed on 06/29/2001 and made of record as Paper No. 2. The references cited on the PTOL 1449 form have been considered.

### **Election/Restriction**

3. Application's election with traverse to prosecute the invention of Group I, claims 1-8, and 24-29, drawn to a semiconductor device, in Paper No. 6 is acknowledged.

Applicant's arguments filed on 09/09/2002 have been carefully considered, but are not persuasive.

The traversal is on the ground(s) that inventions of Group II and of Group I are related as process of making and product made. The inventions are distinct since the process as claimed can be used to make other and materially different product. For example, the process as claimed in Group II invention can be used to make a memory

device wherein the array of space-apart polymer structures do not comprise a polymer selected from a group as recited in claim 8 of Group I invention.

Further, the Applicant's arguments are not found persuasive because the fields of search for process claims of Group II invention, which is classified in class 438, and device claims of Group I invention, which is classified in class 257, are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing text searching of the device claims and method claims are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made **FINAL**.

Claims 9-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected group there being no allowable generic or linking claim.

Applicant has the right to file a divisional application covering the subject matter of the non-elected claims.

4. Applicant is reminded that a complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01. Also, upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the

currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently filed petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(h).

### **Specification**

5. The specification is objected to for the following reason:

On page 10, lines 11-12, the term "PCMCIA" has not been previously defined.

Correction is required.

The specification has been checked to the extent necessary to determine the presence of possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Objections**

6. Claim 23 is objected to because of the following reasons: In claim 23, lines 1-2, the term "PCMCIA" has not been previously defined.

Appropriate correction is required.

### **Claim Rejections - 35 USC § 112**

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 6 and 28 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 28 recite the limitation " the ferroelectric polymer structure" on lines 3 and 2, respectively. There are insufficient antecedent basis for these limitations in the claims.

### **Claim Rejections - 35 U.S.C. § 103**

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3, 8, 24-26 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,072,718 to Abraham et al. in view of the following remarks.

Regarding to claims 1 and 24, Abraham et al. discloses a polymer memory device, as shown in figures 1, 9-14, comprising:

a substrate (see column 2, lines 5-11);

a memory article disposed on the substrate, the memory article comprising:

a series of first electrodes 1-3;

an array of discrete, spaced-apart structures 9 disposed over the series of first electrodes 1-3; and

a series of second electrodes 4-6 disposed over the discrete, spaced-apart structures 9. See figure 1.

Abraham et al. neither explicitly teach that the discrete, spaced-apart structures being made of polymer, nor that the memory article being in communication to a host through a signal interface. It would have been obvious to one having ordinary skill in the art at the time the invention was made that polymer are well known polarizable ferroelectric materials used in memory device (see also U.S. Patent No. 5,927,206 to Bacon et al., lines 45-57), and that a memory device must be connected to other component such as a host in order to use it, and it is inherent that such connection must be performed via a signal interface.

Regarding to claims 2, 3, and 26, Abraham et al. disclose the polymer memory device comprising all the claimed limitations, except for an area of the polymer structure in the array of discrete, spaced-apart polymer structures being greater than the product of the widths of the first and second electrodes, and for the width of the first and second electrodes being of 0.25 micron, 0.18 micron, 0.13 micron, or 0.11 micron. However, it would have been an obvious matter of design choice to have the widths of the first and second electrodes being as those claimed in the pending application, since applicant has not disclosed that such widths solve any stated problem or is for any particular purpose.

Regarding to claim 8, Abraham et al. disclose the polymer memory device comprising all the claimed limitations, except for an array of discrete, spaced-apart polymer structures comprising a polymer selected from  $(\text{CH}_2\text{-CF}_2)_n$ ,  $(\text{CHF-CF}_2)_n$ ,  $(\text{CF}_2\text{-CF}_2)_n$ ,  $\alpha$ -,  $\beta$ -,  $\gamma$ -, and  $\delta$ -phases thereof,  $(\text{CH}_2\text{-CF}_2)_n$ -( $\text{CHF-CF}_2$ ) $_m$  copolymer,  $\alpha$ -,  $\beta$ -,  $\gamma$ -, and  $\delta$ -phases thereof, and combinations thereof. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made that such materials are well known polarizable ferroelectric materials used in memory device (see also U.S. Patent No. 5,927,206 to Bacon et al., lines 45-57)

Regarding to claim 25, Abraham et al. in view of the above remarks disclose the memory system comprising all the claimed limitations, except for the physical interface configured to a host interface being selected from a PCMCIA card interface, a compact flash card interface, a memory stick-type card interface, a desktop personal computer expansion slot interface, and a removable medium interface. However, it would have been obvious to one having ordinary skill in the art that the interface through which a memory device being in communication with the host could be any type, including those claimed in the pending application, and these types of interfaces depend on the type of the host which the memory being connected to.



11. Claims 4, 5 and 27 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,072,718 to Abraham et al. in view of the above remarks and further in view of U.S. Patent No. 5,927,206 to Bacon et al.

Regarding to claims 4, 5, and 27, Abraham et al. disclose the polymer memory device comprising all the claimed limitations, except for a protective film or an organic protective film disposed above and on the electrodes.

Bacon et al. disclose a memory device having an organic protective film disposed above and on the electrodes. See column 5, line 58 to column 6, line 17.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Abraham et al. to include a protective film as that of Bacon et al., because those skilled in the art will recognize that such modification and variations can be made without departing from the spirit, but also increasing the performance, of the invention of Abraham et al.

#### **Allowable Subject Matter**

12. Claims 6, 7, 28, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed memory device wherein each electrode in the series of first electrodes being contacted by the ferroelectric polymer structure on three of the four surfaces (claims 6, 28), and

wherein the series of first electrodes comprising a damascene structure disposed in a substrate (claims 7, 29).

13. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

### **Conclusion**

14. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

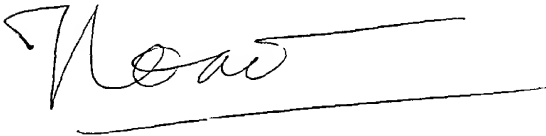
A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (703) 305-1957. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308 - 4910. The fax numbers for

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Customer Service is (703) 872-9317, for the organization where this application proceeding is assigned is (703) 872-9318 for regular (Before Final) communications or (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Dao H. Nguyen', with a long horizontal line extending to the right.

Dao H. Nguyen  
Art Unit 2818  
November 6, 2002

HOAI HO  
PRIMARY EXAMINER